REMARKS/ARGUMENTS

Reconsideration of this application is respectfully requested in view of the foregoing amendments presented herein.

1. Rejection of Claims 1-26 under 35 U.S.C. § 102.

Claims 1-26 were rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 5,244,819 to Yue.

a. Claim 1; Characterization of Yue Reference.

For convenience, Claim 1 is presented in its entirety:

Claim 1. A multilayered material for fabrication of a nanodevice, comprising:
- (a) a device layer; and
- (b) a substrate layer;
- (c) said substrate layer having a top surface adjacent said device layer, and a bottom surface;
- (d) wherein said substrate layer comprises a diffusion layer having a collection region adapted for capture of hydrogen;
- (e) wherein the collection region is positioned away from the bottom surface of the substrate and toward the top surface; and
- (f) wherein the substrate layer is adapted for diffusion of hydrogen from the bottom surface to the collection region.

The Examiner's characterization of Yue is as follows:

> Regarding claim 1, Yue teaches a multilayered material for fabrication of a nanodevice, comprising of a device layer (28) and a substrate layer (20,22,24), said substrate layer having a top surface (top of layer 24) adjacent to said device layer and a bottom surface (bottom of layer 20), wherein said substrate layer comprises a diffusion layer (24) having a collection region (38) adapted for capture of hydrogen (column 1, line 30 and column 3, lines 4-6), and wherein the collection region is positioned away from a bottom surface of the substrate (20) and towards a top surface (top of layer 24. See figures 1-3).

At the outset, the Examiner's citation of column 1, line 30, and column 3, lines 4-6, is improper. These portions are cited to support the presence of the collection region adapted for capture of hydrogen, but these passages are not remotely related to that

element. Column 1, line 30 discusses the implantation of oxygen into SOI structures to produce an insulating oxide layer, which is not related to the ion implantation at all. Column 3, lines 4-6 discuss the creation of gettering or damage sites for metallic contamination by implanting dopants in the inactive region of the silicon layer, and nothing about adapting the region for the capture of hydrogen. The citation of these passages is somewhat misleading, encouraging a belief that support for an element exists when it is clearly not present.

In case the drawings of the instant application have been misconstrued, the Examiner's kind attention is directed to Figure 6 of the instant application, which shows the multilayered material of the instant invention after device fabrication. The X's present in layer 16 and denoted by reference numeral 24 are not ions that are implanted in the material. Rather, they are nanodevices (see, e.g., paragraph [0090]). The "device layer" of the instant invention is a layer in which nanodevices are present. In Yue, the X's represent implanted ions, which are not the same. No nanodevices are shown in Yue. In the instant invention, the getter region is in the diffusion layer 22, which is separate from the device layer. The diffusion layer is at the top of the substrate layer, and below the insulator layer 20 (if present) and the device layer 16.

Moreover, the Examiner's characterization of Yue is incorrect. In Yue, reference numeral (28) corresponds to a masking layer, which is removed along with an oxide layer (26) prior to ion implantation. Reference numeral (20) is a bulk substrate, (22) is a bound oxide layer, and (24) is a silicon substrate layer. The gettering/damage sites are formed in the silicon layer (24) from the front side of the material after the masking layer (28) and the oxide layer (26) are removed. In addition, the "active portion" (32) of Yue is the only portion that contains all of the layers at the time of ion implantation, and ions are not implanted into the "active portion" at all (see Fig. 3). If any layer of Yue would be considered a "device layer", it should be the silicon layer (24). In that case, the getters are then placed in the "device layer" of Yue, which does not meet the requirements of Claim 1, which requires a diffusion layer adjacent to the device layer.

Referring to the Examiner's statements about Yue above, the "device layer" (28) in Yue is not even adjacent to the "substrate" (20,22,24). There is a layer of oxide between the top surface of the "substrate" and the "device layer". The Examiner admits as much in the rejection of Claim 2, in which the position of this oxide layer is acknowledged. Yue does not contemplate the absence of this oxide layer. Thus, Yue cannot anticipate or render obvious the invention of Claim 1, which does not require an insulator layer, and the rejection must be withdrawn.

b. Diffusion from the Bottom Surface.

The Examiner admits that "Yue fails to teach the substrate layer is adapted for the diffusion of hydrogen from the bottom surface to the collection region", but explains this away by saying that the prior art structure in Yue is capable of performing the intended use, and it therefore meets the claim. ***Yue, however, explicitly states that its structure is not capable of performing the intended use of the Applicant's claimed invention.*** Yue teaches "an effective method of front side gettering", as stated in column 2, line 6. See column 1, lines 44-66, in which backside gettering methods of removing impurities are discussed. Yue specifically states that the backside methods "do[] not work for an SOI device, because the silicon layer where the integrated circuits will be fabricated is located on a buried silicon dioxide layer…[t]he impurities are therefore ***not able to diffuse through the buried layer to the damage sites***" (emphasis added). The buried layer separates the front side from the back side.

Note that layer (22) in Yue is a buried oxide layer, which prevents diffusion from the back side. Thus, Yue, by its own admission, cannot possibly anticipate or render obvious the claimed invention. If the "diffusion layer" is (24), and the bottom surface of the "substrate" is the bottom of layer (20), Yue itself teaches that there is no diffusion through the buried oxide layer (22).

Because there can be no diffusion through the buried oxide layer in Yue, Yue can neither anticipate nor render obvious any of Claims 1, 8, 14, 20, or 26 (the independent claims) or any claim depending therefrom. Thus, the rejection of Claims 1-26 under 35

U.S.C. § 102(b) or, in the alternative, under 35 U.S.C. § 103(a), must be withdrawn.

2. Rejections under 35 U.S.C. § 103.

Claim 27 was rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,244,819 to Yue in view of U.S. Patent No. 5,200,641 to Kosaki.

Claim 28 was rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,244,819 to Yue in view of U.S. Patent No. 4,383,270 to Schelhorn.

Because Yue cannot anticipate or render obvious any of Claims 1, 8, 14, 20, or 26, these rejections are moot. Neither Kosaki nor Schelhorn provides any of the missing elements of Yue.

3. Conclusion.

Based on the foregoing, Applicants respectfully request that the various grounds for rejection in the Office Action be reconsidered and withdrawn with respect to the presently amended form of the claims, and that a Notice of Allowance be issued for the present application to pass to issuance.

In the event any further matters remain at issue with respect to the present application, Applicants respectfully request that the Examiner please contact the undersigned below at the telephone number indicated in order to discuss such matter prior to the next action on the merits of this application.

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Respectfully submitted,

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